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REMARKS

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The Declaration Under 37 C.F.R. §1.132 addresses, among other things, the assertion that the Amendment After Final of June 7, 2007 introduces new matter. The Declaration demonstrates that the limitation having "an average molar distribution of three monomeric units" is supported by the specification.

Entry of the Amendment After Final dated June 7, 2007 and allowance of claims 1-9 are respectfully requested.

The Commissioner is authorized to charge any additional fees which may be required to Deposit Account No. 16-2025. Please refund any overpayments to Deposit Account No. 16-2025.

All correspondence regarding this application should be directed to:

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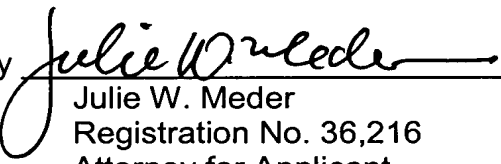**Pittsburgh, Pennsylvania 15272**
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Respectfully submitted,

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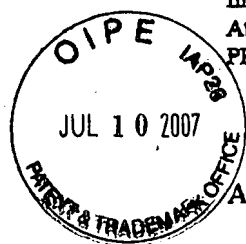Attorney for Applicant

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Application No. 10/765,252
In Reply to Office Action dated June 19, 2007
Attorney Docket No. 3948-035031
PPG Case No. 1908A1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	:	10/765,252
Applicant	:	Thomas G. Rukavina
Filed	:	January 27, 2004
Title	:	URETHANE POLYOL PRECURSORS FOR COATING COMPOSITIONS
Art Unit	:	1711
Examiner	:	Thao T. Tran

Confirmation No. : 9565

Customer No. : 24959

DECLARATION UNDER 37 C.F.R. § 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

I, Thomas Rukavina, declare as follows:

1.   I am a citizen of the United States and reside at 125 Ridgeview St., New Kensington, PA 15068. I graduated from West Virginia University in 1975 and received a Bachelors of Science in Chemistry. I graduated from Duquesne University in 1981 receiving a masters of science in Chemistry. I have 30 years of experience within the field of polymer chemistry, working for PPG Industries, Inc.

2.   I have read and am thoroughly familiar with the contents of the above-identified patent application. Furthermore, I have read and understand the Office Action dated June 19, 2007 and the issues and prior art references listed therein, specifically U.S. Patent No. 3,917,570 to Chang et al.

3.   Contrary to the assertions in the Office Action dated June 19, 2007, the limitation of claim 1 added by the Amendment dated June 7, 2007 reciting "an average molar distribution of three monomer units" is supported by the specification.

4.   Claim 1 is directed to a trimeric unsymmetrical polyurethane polyol comprising the reaction product of a diisocyanate; an aliphatic diol having 1-6 carbon atoms; and a polymeric diol having at least one oxycarbonyl linkage and having from 5-20 carbon atoms. The trimeric polyurethane polyol has an average molar distribution of three monomeric units and includes hydroxyl termination. This claim finds support in the language of the specification. More

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particularly, the three monomeric units are (a) diisocyanate, (b) an aliphatic diol having 1-6 carbon atoms, and (c) a polymeric diol having at least one oxycarbonyl linkage and having from 5-20 carbon atoms.

According to paragraph [0018] of the specification, the trimeric polymer is represented by a general structure as follows:

x moles short chain diol: 1 mole diisocyanate: y moles of polyol

where x + y = 2.

Therefore, the trimer recited in claim 1 has an average molar distribution of three monomeric units, because 1 mole of diisocyanate is always included and x + y must always equal 2. This claim language is fully supported by the language of the specification.

5. The molecular weight distribution for trimeric polyurethane polyol can be calculated by and through the following equation:

$$W_x = X_n r^n [(1-r)^2]/[(1+r)^2]$$

where,

W_x = weight fraction of a mer from monomer to a higher molecular weight

mer, such as trimer, pentamer, heptamer, nonamer, etc. corresponding to

3, 5, 7, and 9 units respectively and higher.

X_n = the degree of polymerization, which is 3 for a trimer.

r = the mole ratio of isocyanate to diols, which is 1:2 (or 0.5) for a trimer

n = the repeat unit for the oligomer

Thus, inputting 0.5 for r, the value of $(1-r)^2/(1+r)^2 = 0.1666$ (a constant for a trimer). The values for W_x are calculated as follows:

For a *monomer*, n = 0, thus W_x = 1 x 1 x 0.1666 = .1666 or 16.66 weight %.

For a *trimer*, n = 1, thus W_x = 3 x $(0.5)^1$ x 0.1666 = .2499 or 24.99 weight%.

For a *pentamer*, n = 2, thus W_x = 5x $(0.5)^2$ x 0.1666 = 0.2082 or 20.82 weight %.

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The following table shows part of the calculated molecular weight distribution (Mn), for a trimer, with a mole ratio of isocyanate to diols of 1:2, or r = 0.5.

	W_x	Weight %
Monomer	0.1666	16.66
Trimer	0.2499	24.99
Pentamer	0.2082	20.82
Heptamer	0.1452	14.52
Nonamer	0.0933	9.33

One can see from the distribution that about 25% of the distribution is always trimer. Gel permeation chromatography (GPC), verifies this exact distribution for a trimeric polyurethane polyol.

6.   As an expert in the field of polymer chemistry, it is my contention that the Chang patent did not intend or appreciate reacting unsymmetrical polyols with diisocyanates for low viscosity and high solids. A unique characteristic of the claimed polyurethane polyols is their asymmetry, which prevents crystallization and promotes high viscosity. Chang does not specify trimeric oligomers that are necessary in the claimed invention to keep the viscosity low for high solids coatings with good mechanical properties.

Chang not only uses both carboxylic acids and trifunctional compounds such as trimethlyolpropane but also reacts the carboxylic acid groups with polyimines. The presently claimed invention does not utilize carboxylic acids or trifunctional compounds such as trimethlyolpropane.

Further, I note that the Chang patent specifies carboxylic acid functional polymers that have a functionality of 3 or more, whereas, the presently claimed invention specifies linear polymers with a functionality of 2.

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    7.   I declare further that all statements made herein of my own knowledge are true and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application and any patent issuing thereon.

Respectfully submitted,

Thomas Rukavina

7-5-2007
Date